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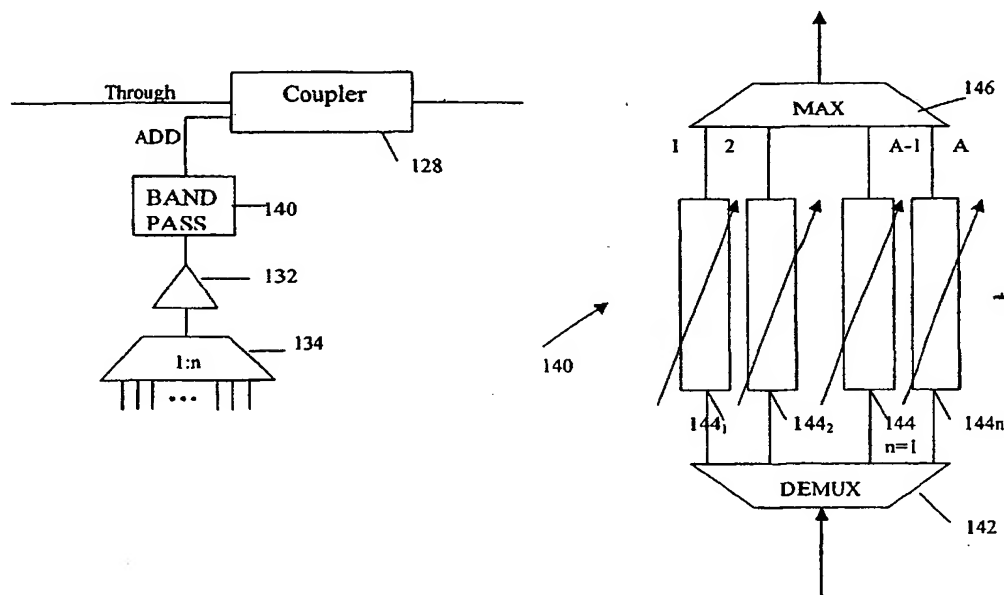
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(54) Title: NOISE REDUCTION IN OPTICAL COMMUNICATIONS NETWORKS



(57) **Abstract:** The add path of a DWDM add/drop node comprises a n:1 coupler for combining n signal sources. The combined signal is amplified and then demultiplexed. Each output of the demultiplexer is passed through a variable optical attenuator (VOA) and the VOA outputs multiplexed to form the add signal. Channels carrying no add signal and not used to control the added signals are attenuated to zero to remove a broadband noise contribution from those channels. The signal sources are run at maximum power and the signal of those channels attenuated by the respective VOAs to control their amplitude and optimise the optical signal to noise ratio of the add signal.